CLAIMS:

1. A surface acoustic wave sensor assembly comprising:
a surface acoustic wave sensor comprising a plurality of electrodes;
a circuit layer including an aperture and a plurality of electrical contacts; and
a Z-axis conductive layer to couple the electrical contacts to the electrodes.

2. The surface acoustic wave sensor assembly of claim 1, wherein the Z-axis conductive layer comprises a Z-axis conductive elastomer.

3. The surface acoustic wave sensor assembly of claim 2, wherein the Z-axis conductive elastomer forms a hermetic barrier between the surface acoustic wave sensor and the circuit layer.

4. The surface acoustic wave sensor assembly of claim 1, wherein the surface acoustic wave sensor forms part of a sensor cartridge and the surface acoustic wave sensor is exposed to a fluid path within the cartridge via the aperture.

5. The surface acoustic wave sensor assembly of claim 1, wherein the surface acoustic wave sensor comprises a Love mode shear-horizontal surface acoustic wave sensor.

6. The surface acoustic wave sensor assembly of claim 1, wherein the electrical contacts of the circuit layer comprise circuit traces formed on the circuit layer.

7. The surface acoustic wave sensor assembly of claim 1, wherein the electrodes are located at a periphery of the sensor.

8. A sensor cartridge comprising:
a housing comprising a fluid path; and
a surface acoustic wave sensor assembly comprising a surface acoustic wave sensor that comprises a plurality of electrodes, a circuit layer that comprises an aperture

and a plurality of electrical contacts, and a Z-axis conductive layer to couple the electrical contacts to the electrodes, wherein the surface acoustic wave sensor is exposed to the fluid path via the aperture.

9. The sensor cartridge of claim 8, wherein the plurality of electrical contacts are not exposed to the fluid path.

10. The sensor cartridge of claim 8, wherein the Z-axis conductive layer comprises a Z-axis conductive elastomer.

11. The sensor cartridge of claim 10, wherein the Z-axis conductive elastomer forms a hermetic barrier between the surface acoustic wave sensor and the circuit layer.

12. The sensor cartridge of claim 8, wherein the surface acoustic wave sensor comprises a Love mode shear-horizontal surface acoustic wave sensor.

13. The sensor cartridge of claim 8, wherein the housing comprises an input port to the fluid path.

14. The sensor cartridge of claim 13, wherein the fluid path comprises an input reservoir proximate the input port, an output reservoir, and a channel between the input reservoir and output reservoir, wherein the aperture is proximate the channel.

15. The sensor cartridge of claim 14, further comprising sorbent material inside the output reservoir.

16. The sensor cartridge of claim 15, wherein the housing comprises an output vent proximate the output reservoir.

17. The sensor cartridge of claim 8, wherein the housing comprises an air reservoir an opposing side of the surface acoustic wave sensor relative to the fluid path.

18. The sensor cartridge of claim 8, wherein the electrical contacts of the circuit layer comprise circuit traces formed on the circuit layer.

19. A method of forming a surface acoustic wave assembly comprising electrically coupling a plurality of electrodes of a surface acoustic wave sensor to a plurality of electrical contacts of a circuit layer with a Z-axis conductive layer.

20. The method of claim 19, further comprising providing an aperture in the circuit layer such that when the a plurality of electrodes are coupled to the plurality of electrical contacts of a circuit layer with a Z-axis conductive layer, the surface acoustic wave sensor is exposed via the aperture.

21. The method of claim 19, wherein the Z-axis conductive layer comprises a Z-axis conductive elastomer.

22. The method of claim 21, wherein the Z-axis conductive elastomer forms a hermetic barrier between the surface acoustic wave sensor and the circuit layer.

23. The method of claim 19, wherein the surface acoustic wave sensor comprises a Love mode shear-horizontal surface acoustic wave sensor.